Notebook Series -- Notebooks by Edison
Notebook, N-13-08-25.2

This notebook was used by Edison and Peter C. Christensen during the period August 1913-May 1914 for a sequence of numbered "tracking tests," which are continued in N-14-06-09. These tests involved evaluating the hardness, surface tension, and other characteristics of experimental preparations of wax compounds and metallic soaps, probably in an effort to improve the quality of the "white master" records onto which recordings were made. The masters formed the base for subsequent molds used in the disc record production process. Intermixed with the tracking tests are entries by Christensen alone [not selected] relating to tests of the viscosity and purity of rosin, varnish, graphite, and various waxes used in the manufacture of phonograph records. Related wax experiments by Christensen, with comments by Edison, can be found in N-12-04-19, Notebooks by Other Experimenters—Miscellaneous Experiments. The spine is labeled "Testings #1." The book contains 197 numbered pages and has been used to page 196.

Tracking Test #1

#2 - 10g of Candellilla 4g Blended Montan Wax
Too little cant track to Knife edge

#14 - 10g of Candellilla 2g of Paraffine 140°
Too hard cant track to Knife edge & chips

#15 - 10g of Candellilla 5g of Paraffine 140°
Nearly tracks to Knife edge and
then chips too hard & brittle

#17 - 10g Candellilla 15g Paraffine 140
Tracks to Knife edge very Slang Chatter
marks more than 3 times larger than
Reg wax

#18 - 10g Candellilla 30g Paraffine 140°
Can go to Knife edge & beyond considerable
X Chatter marks 3 times wider but no
length. Looks good

Tracking Test #2

#19 - 10g of Candellilla 25g Paraffin 140°
Can cut nearly to Knife edge. chatter
marks 3 times as wide but ill defined

#25 - 10g of Candellilla 2g ceresin
Cant get to Knife edge Chatter nearly
as fine as Reg

#26 - 10g of Candellilla 5g ceresin
X Can go to Knife edge some margin
on this. Chatter well defined twice as
big as Reg

#26 - Duplicate of above
Can just go to Knife edge no margin
Chatter twice as big & rather well defined

#49 - 10g of Candellilla 10g Spermaceti
Can just go to knife edge no margin
large very confused chatter marks - ball
looking cylinder bad mix

Tracking Test #3

#69 – 10 g Candelilla 2 g Myrtil wax
Cant go to Knife edge – poor

#70 – 10 g Candelilla 5 g Myrtil wax
Cant go to Knife edge Chatter twice as big as Reg.

#73 – 10 g Candelilla 15 g Myrtil wax
X Can go to Knife edge & some margin
Chatter 2 to 3 time & well defined
Bad mouldy mix

#78 – 10 g Candelilla 45 g Myrtil wax
Can go to Knife edge after moulded
Big Margin Chatter 2 to 2½ time
larger not very clearly defined Mix
mottled

#80 – 10 g Candelilla 3 g Stearic Acid
Cant go to Knife edge or near it
poor

Tracking Test #4

#81 10 g Candelilla 5 g Stearic Acid
Cant go to Knife edge – Chatter twice
as big as Reg. & ill defined

#82 10 g Candelilla 10 g Stearic Acid
Can go to Knife edge & some
margin Twice to 3 times larger
Chatter & very badly defined
Mix seems not Homogeneous

#91 – 10 g Candelilla 3 g Stearine Potash
Wags Can't go near Knife edge
Chatter twice as Reg. sharp

#96 10 g of Candelilla 1 g Heptadecanol
Cant go to Knife edge Chatter same
as Reg. but ill defined

#98 10 g Candelilla 5 g Heptadecanol
Wags – Chips or Wags No good
Can't go near Knife edge

CONT 5+

Myrtle / Black Mountain / Stearic acid / 30

#	Gms	Wax	
281	10 g	3	NG. Vaseline (see below) but to 5½ gr of this I added 1 gr of Candelilla #96 - L Ott - sol in above
282	10	3	NG Ceresin but to 5½ gr of this I added 1 gr of #284
283	10	3	(NG) Paraffin 100 + 3 Wax gave Shine but to 160 gr of this mix add 3 gr Vaseline and 15 gr of Bee wax - (Oxford)
284	10	3	X/ part Vaseline 3 parts Wax to 6 gr of this add 6 gr of #96 Candelilla L Ott
285	10	3	1/10 part [illegible] Carnauba
285	see page 64		
286	10	3	1/10 part [illegible] 3 parts Bee Wax

#281 - after the last addition was not good yet I added 3 of Chinese Indian wax 3 of pure Montan wax mixed by L Ott - (insol in alcohol) to 6 gr of 281 having the last addition in it

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CONT FROM 54

Tracking Test 5

#110 - 10 gr Candelilla 3 gr pure Bee wax By A. Ott. Cant go to knife edge cause cement thing same keep shatter marks be Reg.

#111 - 10 gr Candelilla 3 gr pure Beeswax by A Ott go beyond knife edge some 2 thirds edge Chip - Chatter Upon 2½ under - Wants like beeswax with the moulding ingredients got out of Bee wax then would be premium fair smooth surface Tracking when not too deep is shining. Not Much electric

#112 - 10 g Carnauba 10 g Beeswax NG Very sticky deep in 2 marks, big music [illegible]

#116 - 10 g of (10 g Candelilla + 20 g Paraffin) Since 1 gr of Lead Stearate

Can go to knife edge But has horrible inhomogeneous Prime surface Not defined Chatter.

Tracking Test 6

#119 - 10g of (10g Candellila 20g Paraffine) mix
1g of Zinc stearat
All defined clatter marks can just
go to knife edge very bad
slaving off shows bad surface Digs

#128 - 10g mix as in #119 + 1/2g Al stearat
Not Electric fairly shiny grooves not sticky
X can go beyond Knife edge All defined
clatter twice as large - somewhat promising

#129 - 10g of (10 Candellila 5g Carnauba) mix
1g of Lead - Stearate
Clatter mks rather even - three or 3 times coarser
than Reg can go to knife edge very slight
dont clip out at all no matter how deep
X when very deep edge peals white good
smooth fine grain whole track looks what
may be something in this
Promising

Tracking Test #7

#132 - 10g - (same mix as 129) 1g Zinc Stearate
Dull - pretty good surface feel sticky
can go beyond Knife edge in most angles
X but when deep edge slips Clatter works
fairly even twice wider as Reg looks good
not much Electrical Very Promising

#140 "A" 10g - (same mix as 129) 2g Bees wax
Not at all Elec - continuous clip when
very deep - somewhat sticky clatter mks about
X same as Reg at same depth can go
almost any angle surface rather fine
& mix fairly homogeneous - mks mks cross
Exceedingly Promising

#140 B 10g (same mix as 129) 5g White Montan
Not Promising

#141 10g (10 Candellila 10g Myrtle wax) mix
1g Lead stearate - N.G.
horrible Electrical ~~Can't go to knife edge~~

Tracking Test #8

#144 - 10g (10 Candelilla + 15 Myrtle) 1g zinc stearat
Dull surface, dr tracking Not probably

#147 - 10g (10 Candelilla 10 Myrtle) 1g Mg Stearat
Chatter Dull defined Not promising

#150 10g (10 Candelilla 15 Myrtle) 1g Al stearat
Chatter marks all kinds of lines go 4 times
large can go to knife edge but break
at edge but can go very deep all the
white chippy edge - can't say if elec

#153 - 10g (10 Candelilla 15 Myrtle) 2g Nickel white
sticky - Dull - not very elec - can go to
knife edge then edge chips
Not promising

#154 - 10g (10 Candelilla 15 Myrtle) 5g White Mopstan
fairly shiny tracking don't appear elec good smooth
surface fine grain chatter like not well defined twice
size reg lines & gives music waves can go beyond
knife & think goes deeper than any so far

Tracking Test #9

without breaking knife edge - not sticky
Very Promising

#156 - 10g (10 Candelilla 15g Myrtle wax) 2g Stearic acid
Can go beyond knife - little sticky - Chatter
like Reg at considerable depth white edge
not elec - fair

#157 - same as 156 - using 5g Stearic
Not good music petty chatter like
can go just to knife edge not good

#158 - same as 156 - using 10g Stearic
goes to knife edge not much beyond
chatter lil defined smooth surface
coarse chippy not elec - fairly shiny gives
white sig after knife - not promising

#159 - 10g Candelilla 15g Myrtle wax) 2g Cerosin
Not sticky - dull surface - with moderate tracking
Chatter not much more than reg. Tracking

Tracking Test #10

[illegible] about [illegible] as 159 fairly reg - very little white on Edge [illegible] Knife not a very good [illegible] but [illegible] dirty - fairly shiny not [illegible] - continuous chips

Very Promising

#160 same as #159 using 5g - Cerosin fairly shiny cut - [illegible] not fine - goes little beyond Knife Chatter somewhat ill defined 3 times as big white on Edge when just beyond Knife

#161 - same as #159 using 10g Cerosin Camo almost any dirt edges very beyond Knife are sharp not white very little Elec - fairly shiny grooves don't seem to be any Chatter marks - surface fair but very inhomogeneous

VERY PROMISING

Tracking Test #11

#162 - 10g (10 Candelilla 1g Imperial) 2g Tetrachloromethane
Not good

#163 - same as #162 using 5g tetra can go a little beyond Knife - poor mix seems to separate Dont appear Elec - continuous chips when does chatter ill defined and two as big Rig

#165 - 10g (10 Candelilla 1g Imperial) 2g [illegible]
Mottled bad - can go beyond Edge [illegible] it chips [illegible] even but 3 times as wide tracking semi shiny little if any Elec

Only Hair

#166 same as #165 using 5g Paraffin Mottled shiny tracking can go beyond Knife & very deep [illegible] Edge chips chatter [illegible] not much Elec

Promising

Tracking Test | #12

#167 - same as #165 using 10g Sampin
Not very homogeneous Mix fair
smooth can go very deep yet
X while very little of Chatter with
ill defined 3 Tongue
Contiguous edge Promising

#168-A - poor surface not promising

#171 - 10g (10 Camellia 15 Myrtle) 2g [illegible]
goes beyond Knife Chatter 1½ more Reg
Mix fairly lumpy - low ball, [illegible]
X tendency of shavings Knife to Chip
a Little Promising

#172 - Bad Mix can go to Knife
same Mix as #171 using 10g [illegible]

Tracking Test | #13

#175 - 10g of Mix. —
(8 Camellia 9 Myrtle - 1 Hexanoic Acid
8 China wax Inbest) + 2g of White Mix
Just go to Knife - not promising

#178 - 10g of Mix same as #175 -
+ 2g Stearic Acid - Chips in turning
poor surface can go just beyond Knife
Only Chatter twice to 1½ = not prom.

#179 - 10g [illegible] Mix same as #175 -
+ 5g of [illegible] Acid - Just go to
Knife, Chatter twice Reg Mix only
fair bad wavy surface not promising

#181 - 10g of Mix same as #175 -
+ 2g of Cerusin - Mix bad. Just go
to Knife not promising

#182 - same as 181 using 5g cerusin
very rough Knife N.G.B CONT - 65

Tracking Test | #14

184 - Mix - 8 Candilla 7 [illegible] [illegible] 18 [illegible] + 2g of Paraffin - [illegible] not homogen. goes just to Knife edge apparently not Elec. Chatter twice as Reg and pitted - Not promising

186 [illegible] 184 - 10g + 10 of paraffin - Not [illegible] surface not good Chatter 1½ @ 2 sides Reg just go a little beyond Knife - apparently not Elect

188 - Mix same as # 184 - 10g + ½g of Tetrachloronaphthalene - Mix not good separate but fair surface - Can go beyond Knife edge considerably Chatter twice signs full of depressions due to soft & hard segregations - not apparently Electrical

Tracking Test | #15

189 - 10g Candilla + 1g of Lead Stearate [illegible] Knife edge Rough Mix

190 - 10g Candilla + 5g Lead Stearate Very brittle Can't go more than ⅓ way without a slipping -

191 - 10 Candilla + 1g Zinc Stearate NG Can't Track ½ without chirping - Chipped on turning

193 10 Candilla + ½g Alum. Stearate Rough brittle Mix Can't go to Knife Edge Chatter not quite so fine as Reg

194 - 10 Candilla + 1g Alum Stearate Rough Surface Chatter mark twice signal Reg Can't go to Knife edge

Tracking Test #16

#195 - 10 Candelilla + 2 [illegible]
Too hard - can't go to Knife Edge
surface not fine grain not promising

#197 - 10 Candelilla + 10 [illegible]
Not good surface can't go as deep
as Reg - not promising

#201 - 10 Candelilla + 30 - Stearine
Chatter larger than Reg - can't go quite
as deep as Reg Surface slightly [illegible]
edge drags little. Contents [illegible]
not Elect. - Surface [illegible]
that may be [illegible]

#216 - 10 g Candelilla 1 g Wax [illegible]
Too brittle & hard - track as deep as Re[illegible]
goo surface

#225 - 10 g Candelilla + 1 g Vegetable Wax
Too hard & brittle, can't go near Kni[illegible]
edge Electrical

Tracking Test #17

#246 - 10 Candelilla + 20 Bayberry Wax
Poor surface - frosty - N.G.

#247 - 10 g (10 Candelilla - 15 Myrtle) + 1 g
Bayberry wax - Not Elect - Contents
chips also about like Reg - surface
not near as fine grain

#256 - 10 g (10 Candelilla + 15 Myrtle) + 2 g
Japan Wax purified by L/O H - g
Electrical but go to Knife edge
surface not quite so good as Reg
Chatter a little larger

#260 - (Mix #140 7 - 6.66 Candelilla 3.33 Carnauba
2 g of Bees wax purified By L. O. H.)
Contained Chips very soft not Elec
dul Chatter twice Reg can go very deep
and still give contents chips surface
fair - maybe useful for something
(10 g of Mix + 1/2 g Vaseline)

Tracking Test #18

#263 - (Mix of #140-A - 666 Candelilla 333 of Ceresin 2g Beeswax) 10g of this to ½g Carnauba wax
Little stiffer - not thin continuous clip best 20x soon Chatter twice Reg - surface shiny not rough can go deeper than Reg It's not homogeneous cloth not dendrite or rather thin fine grained surface not so good as Reg if could get cloth out be good
Very Promising

#264 - same as #263 - using 5g of Carnauba - no deeper than Reg
Mix seapostro N G

#270 - (Mix of #140-A - 666 Candelilla 333 Ceresin - 2g Beeswax) 10g of this to 1g Black White Montan Chatter makes not much more than Reg It goes deeper than Reg - over

Tracking Test # 19

Ridge shiny grooves general appearance not dull looking - can go wider Ridge edge a little thin crack edge - this mix is not homogeneous something don't mix surface not as fine grain as Reg - Tept 170° F about same stiffness not thin.
Very promising

#272 - (Mix of 140-A - 666 Candelilla 333 of Ceresin 2g Beeswax: 10g of this to ½g of Npart Vaseline to 3 parts of Aluminum Stearate - Soft dull surface can go very deep bell polished Chatter twice reg continuous clip at any depth not practical It works good considering the great softness of this material I may be very useful some day

Tracking Test | #20

#278 (Mix of #140A - 6.66 Candellila 3.33 Cerasin 2g of Boss wax - to 10g of this to ½g Stearic Acid
Fine - Surface [illegible] - [illegible] Electrical [illegible] Reg is somewhat softer. Useful for something where good surface and as deep tracking wanted

#279 - (Mix of #140A - 6.66 Candellila 3.33 Cerasin 2g Boss wax - to 10g of this 1g of Myristic Acid - Not too much stick Very good surface little soft feel like can track deeper than Reg Chatter about same Rather Dull surface - this is promising for a soft wax sticky should be got down

#280 - same as #279 - using 2g Myristic not too little sticky can go deeper than Reg Chatter little more than Reg - duller

Tracking Test | #21

Rather soft - continuous chip at any depth, surface not quite so good as Reg promising for soft wax

#288 - Dup of #140A - using pure Candellila insoluble in alcohol 10g Mix (10g Candellila ½g of Cerasin) 2g Boss wax Mix settles out in 2 parts N.G.

#289 Dup of #154 - using pure Candellila insol in Alcohol 10g Mix (10 Candellila 1½ Myristic) ½g Black White Mountain Continuous Chip but stick goes little beyond Knife Very good surface not quite as good as Reg but fine appears homogeneous Chatter little more than Reg 3 times softer than Reg Promising

290 Dup of #159 - 10g Mix (10 Candellila pure insol in alc + 1½ Myristic) 2 cerasin Mix settles out N.G.

Tracking Test #22

#291 - Drop of #161 -
10g Mix (10 Candelilla pure sol in alcohol + 1½g Myrtle) 10 Cerasin -
Continuous Chips - only to Knife edge
surface poor Not Electrical but soft

#292 - Drop of #132 - using pure
Candelilla sol in Alcohol & Rosin extracted
10g Mix (10 Candelilla + ½ Cerasin) 1gm
of Zinc Stearate - Not Elec Chips soft
but fairly shiny but very defined
Chatter Cabs go deep (as Reg) Mix settles
out not promising

#293 Drop #140-A 10g Mix (10 Candelilla
pure sol in Alcohol Rosin extracted
+ 5 Cerasin) 2g Bees wax - Not Elec Touch
shiny surface Chatter big when deep goes
about Drop as Reg very fine grain texture
but its wavy shot with ingredients about Promising if can get wavy surface out

Thus for Expt. 74

Tracking Test #23

#294 - Drop #154 - 10g Mix (10 Candelilla
pure sol in Alc. Rosin extracted - 1½g
Myrtle wax) ½g White Beeswax Mixture
Not Elec. Chips go little deeper than
Reg - semi soft or Rather tough - No
marked Chatter just irregularities only one
so far but this Elec proximity
perhaps if mix ever would be no Chatter
marks surface rather bright - Color yellow
White VERY PROMISING

#295 Drop #154 10g Mix (10 Candelilla
pure sol in Alc Rosin extracted + 1½g
Myrtle wax) 2g Cerasin - Not Elec. Chatter
Chips go about deeper than Reg
Chatter very small even when off Knife
but appears as even small pieces either
tore out or Knife rode over good surface
Very Fine Grain but undulation there is
one irregularity or impurity that guides it
VERY PROMISING

Tracking Test #24

296 - Dup # 161 - [illegible]
(10 g Candelilla paraf sol in Alcohol
Rosin insoluble + 15 g Myrtle wax)
+ 10 g Ceresin - Not Test. Copy Chips.
X Chatter little more than Reg. tough
shiny surface fine grain flat some
wavy can go shade lighter than Reg.
Looks promising if wavy can be got
away with

Cont. P. 119

Condensed Tracking Remarks #1

118	10 Candelilla 20 Paraffin 14d	Looks good
26	10 " 5 Ceresin	Chatter well defined
72	10 " 15 Myrtle wax	" " "
138	10 g (10 Cand - 20 paraffine) ½ Ab Stearate	Somewhat Promising
139	10 g (10 Cand - 5 ceresin) ½ Pb stearate	something in this prom.
139	10 g - (10 Cand - 5 Ceresin) ½ Zn Stearate	Very Promising
140A	10 g - (10 Cand - 5 Ceresin) 2 g Bees wax	Exceedingly Prom.
154	10 g (10 Cand - 15 Myrtle) 5 W. Montan	Very Promising
156	" " " 2 - Stearic A.	fair
159	" " " 2 Ceresin	Very Promising
161	" " " 10 "	VERY PROMISING
165	" " " 2 Paraffin	only fair
166	" " " 5 "	promising
167	" " " 10 "	Promising
171	" " " 2 Spermac	a little promising
310	10 g (10 Cand - 5 ceresin 2 Bees wax) ½ Carnauba	Very Promising
370	10 " 1 W Montan	Very Promising
289	10 (Pure insol in alc 10 - Cand - 15 Myrtle) 5 "	Very Promising
393	10 (Pure sol in alc F.R.) (10 g Cand - 5 Ceresin) 2 Beeswax	Promising if can get wavy slight out
394	10 (Pure sol in alc F.R.) (10 Cand 15 Myrtle) 5 W Montan	Very Promising
395	10 " 2 Ceresin	Very Promising
396	10 " 10 "	Looks promising if wavy can be got away with

Tracking Test 25

Con. from pg 76

#300 – 80 White Pumice } based fractions on Tg 170g
30 Cerium
2 added 30g of the filtrate

Very fine grain surface. Chatter worst under Reg – not so soon goes to Knife Edge & wears beyond – Chips Cling around like Reg – dry practically Electrical, + hard –

Thus to be any value must be defined its nearest Reg of any tool

It has Lots Checks in most of surface 1/2 to 1" apart.

Tracking Test 26

301 60 White Pumice
40 Cerium

Mottled – Can go to Knife & beyond. Edge of wear Chip out, No chatter marks just unhomogeneous roughness – 18 Y have seen without Chatter Marks.

Promising of Could be yet homogeneous – its somewhat like as beyond Knife Chips stick but not up to Knife Edge – Pure white

121

Tracking Test | 27

#30 50 White Mountain
50 Canadian

Mottled —
Very bad - rough -
Unhomogenous - Segregates
Very little Glee

122

Tracking Test | 28

90 White Mountain
10 Steam, Dark } badly fractured to 170 of the
2 adults 26 g Fa Steam

Mottled one end other end
OK - Quite Electrical

Perfect Surface —
Can go to knuffs + beyond

Think it too hard
Chilled Lake Ray

Pressuring

Tracking Test 29

80 g White Montan
20 Stearic Acid F - to 170 g
2 added 20 g Na Stearate
Molted, very unhomogeneous - not good goes to knife chatter ill defined a little Electrical fine pieces Cant blow off - Not good

#308 80 white Montan F to 17
20 P.W. Bees wax - 20 g Na Stearate
Surface family good but not homogeneous Cannot go beyond knife edge. Electrical Cant blow off fine chips - Hard -

Tracking Test 30

80 white Montan
40 Pure Bees wax

Not Electrical - fine Unhomogeneous goes to knife edge, - even when walls wide chips on edges of walls - pure white, Not good -

#310 50 white Montan F
50 P. white Bees wax
added 20 g Babassu wax

Awfully Elec all chips Columns + all stay on Cant blow off - grain Coarse Not good Can go to knife No chatter

Tracking Test | 31

#311 90 White Mountain F to 170g.
10 Paraffin 140°
added 25 g Polyethylene
Electrical – non homogeneous
fine grain mottled –
Uneven surface and very chatter
Can just go to knife walls
Chip –

313 60 White Mountain } Crossed
40 Paraffin } to 170
added 40 g Polyethylene
Only just alightly Elec, Continuous
Chip – Can go to knife –
some chatter marks when
very deep – It is not perfectly
homogeneous walls
dont chip
Seems tells sticky

Tracking Test | 32

312 – 50g of White Mountain
50g F Paraffin 140°

Not Elec – Continuous chip –
fairly dry its not homogeneous
but nearly so – Think This
Can be improved to be OK
Either by Chilling or by
mixing other things to stop
Crystallizing – Very fine
Walls like cylinder
Surface about like very
periodically no chatter
but spots that look like
them but they are the
unhomogeneous parts, walls
dont chip – P O Wilsey

Tracking Test 33

#315 90 white Montana
10 Babbing + } see #315

Horribly inhomogeneous
NG + elec

#316 80 w Montana +
20 Bayburg } see #316

Electrical, bad - not homogeneous, only trace chatter
Can go to Knife
Not pronounced - weak
not chipped -

Tracking Test 34

#317 60 w. Montana +
40 Bayburg } see #317

Bad - Electrical Coarse grain - goes to Knife -
not pronounced

#318 80 white Montana
20 Spenncitty } + see #318

Electrical NG -
Very inhomogeneous

#320 80 white Montana
20 Spenncitty } + see #320

Electrical - Very Coarse grain - Can go beyond Knife
NG

Tracking Test | 35

307 - 90 white Mountain
10 Pure white Beaming } F
& ajdd 70 grf. Not Found
Very fine grain Not Elee
goes way beyond knife
no defined Chatter mark
but straggling pits resembling
Chatter but irregular —
THIS IS VERY
promising — if got
little more homogeneous
seems hard, fine
glistening surface

Tracking Test | 36

[illegible] 90 - white Mountain
10 [illegible] } + #323 Dec

Very Unhomogeneous, two
sublimes yellow & white
aggregate and VERY
Elee — goes to knife —
NG,

#324 80 white Mountain
20 [illegible] } + Dec #324

Not homogeneous. Coarse
grain — just goes to knife
Not Elee — wales dont
Chip — Not Extra promising

Tracking Test 37

60 white Montan
40 wax from Shellac) + [illegible]

Not Elec — Not homogeneous
~~but fairly~~, goes to knife —
only just promising
wedge test chip —
Nice appearing Cylinder
surface to Eye —

#23b 50 white Montan [illegible] to 170
50 wax from [illegible]
30 g stearic acid

Slightly Elec — good
looking Cylinder —
Seems hard — only ~~too~~ little
of Chatter — but uncertain
Somewhat promising

Tracking Test 38

[illegible] Stearic

Electrical Extremely
Unhomogeneous NG
careful

[illegible] Stearic) + wax
327

Some Elec, Has crystals
NG —

Mass of

Tracking Test 39

Like 328 only not so much
hair like cry – Some Elec
not good just goes to
knife –

#330 50 White Mountain
50 Stearine

Only very slightly Elec –
better surface than 328 + 329
but its not homogeneous
Coarse break, chips at
knife edge not preferred

Tracking Test 40

Elec – Horrible
Segregation of ingredients
no g –
332 – 8 White Mountain
20 China Berries
Some Elec – Not homogeneous
spalled break – goes beyond
knife – surface not
fine grain – not preferred

Tracking Test | 41

#333 60 Nyotan
40 Chem Burner) + #33

Horribly Electrical
All chips cling
Can't blow off
NG

#325 90 of white Nyotan
10 of Japan Wax) F
add 30 of Gra Carnauba

Not Elec - fine grain
Continuous chip
Reg Chatter Marks
VERY PROMISING
fine Surface to Cylinder glisters

Tracking Test | 42

Horribly Elec all
Chips cling - Can't
blow off - goes to knife
Spotty Grain

#341 50 Nyotan
50 Carnauba

Bad Unhomogeneous
NG

Tracking Test 43

50 of Morton
50 of Blanch Cyanide

Not Elec – not a fine grain wax – perhaps breaking down beyond knife – Pure white Might do of chilled or some addition to stop fine crystals the appearance not homogeneous but fine grain

Promising

Tracking Test 44

[illegible]

Not sufficient Elec Conductor
Chip – Rag well defined
Chatter Very sharp walls –
Think it a little unhomed
it would take very
little to make it fine –

VERY PROMISING

Tracking Test | 45

#[illegible] 50 [illegible] 50 [illegible] 350
not Elec

Lts like 347 but not
so good —

#351
Like 350 — not Elec

#352 not Elec
Like 350 -

Tracking Test | 46

#[illegible] 70 [illegible] 90 [illegible]

Not Elec — goes way
beyond knife — its pretty
soft as advance back
marks it — Very fine grain
Very smooth Cut Scarcely a
sign of spots w/tracking
or any chatter — To make
this up-cut work will require
advance back to the 3
or 4 times larger —

VERY PROMSG

Tracking Test 47

[illegible] — 60 of Myrtle
40 of [illegible]

Too soft —
not Elec

#326 50 of Myrtle
50 of [illegible]

Too soft —

#327 90 Myrtle
10 [illegible] Acid

This is better, not so soft, but ball marks it & surface not so perfect as 354 —

Tracking Test 48

355 — 50 Myrtle
50 [illegible] Acid
not Elec not Homeog
Too soft — Rough tracking
Walls bad — Spoilt by advance ball —

[illegible] 60 Myrtle
40 [illegible] Acid
Entirely too soft.

#364 50 Myrtle
~~50 [illegible] Acid~~
Too soft balls deadrays &

Tracking Test 49

50 Minutes
2. 20 Pounds Beeswax

Nat Elec - too soft -
balls hurts - but goes
beyond knife & cut
fairly smooth -
& little prominency of
get harder -

#363 60 Minutes
40 Pounds Beeswax

Nat Elec
Coarse surface, ball
Cuts - too soft -

Tracking Test 50

50 Minutes -
50 Pounds Beeswax

Nat Elec Ball Cuts -
not fine grain surface -

#365 90 Minutes
10 Pounds sec #

Coarse grain - Very
soft - no -

#3 [illegible] 50 Pounds sec #

Coarse grain - too
soft, Ball Cuts bad -

Tracking Test | 51

(60 Myrtle
40 Paraffin) + oxide

Too soft, ball drags –
Coarse grain –

~~70~~ Myrtle
30 Paraffine
Not Elec
Coarse grain not good

Tracking Test | 52

(70 Myrtle
30 Para) + oxide

Coarse surface – goes to
Knife – not very promising
Not electrical.

Some Elec – Coarse grain
goes beyond Knife – little
soft, not promising

Tracking Test 53

60 [illegible]
40 [illegible]

Very little Elec of any
ball smears — Grain a little
Coarse.

[illegible]

Not Elec Coarse grain —
not Homog —

#376 50 [illegible]
50 [illegible]

Not Elec, ball smears
Coarse grain — Wedges
break out —

Tracking Test 54

90 [illegible]
10 [illegible]

Not Elec — fine grain —
Reg chatter, Wedges sharp
Can go beyond Knifs —
Ball smears slightly wants
bigger ball

PROMISING

80 [illegible]
20 [illegible]

Not Elec — only mod fine
grain goes beyond Knifs —
Not near as good as 381
ball smears slightly —

Tracking Test On Cargo Dico | 55

#402- and #417- was coated and turned down the following day and shaved by Mr. Linwood paid day than left slip several days awaiting Mr. Delianfs inspection

On May 6. 1914 they were sent to New York to W Miller for shaving and tracking.

Tracking Test | 56

Tracking Test 57

Not Elec
Course grain - walls chip -
Not good -

Electrical, Chips tracks
Chung - Unknown -
Very Course grain - NG

Tracking Test 58

Very Elec - Coarse grain
NG - ball smears -

Not Elec - Very Course
grain - NG

Not Elec - ball smears some
Course grain - Not good

Tracking Test 59

[illegible] 57 [illegible] 392

Electronic, very coarse grain —

152 g Mineral
70 g [illegible]

Not Elec, somewhat coarse grain — ball only smears little, little fine balls all over surface —

#402 90 g Mineral
70 Candelilla

edges, keep ok when very deep —

Not slightest Elec — Beautiful surface sharp clear walls, scarcely any ball smear Reg even fence small shallow can go to any depth

VERY VERY PROMISING

Tracking Test 60

80 Mineral
30 Candelilla

Very little difference between this & 402, ball dont smear at all on this — ~~[illegible]~~ Requires more heat —

104 60 Mineral
40 Candelilla

grain not so fine as 402 the latter (is) 402 best I think

105 50 Mineral
50 Candelilla

Not nearly as good as 402 which is best of this series —

Tracking Test 61

50 Stanc)+

Not Elec, not homeog - walls chip - not good -

40 Cerium)+2

Not Elec Coarse grain - Dont smear at base -

#420
to 170g added 20g

Slightly Elec - grain not fine enough -
Dont smear on base -

Tracking Test 62

50 Stanc
to 170g added 20g

only slight Elec of any grain fairly fine but not so good as 402
no smear from base -
Challen defined walls fairly chipped -

70 Stanc acid)+
30 Barium

Very Coarse - non homeog

60 Stanc acid)+
40 Barium

Not Elec moderately fine grain not very pecuiar

Tracking Test 63

Not Elec - Mod fine grain
beyond Knife Edge.
Chalky somewhat even
+ fine - its only slightly
unhomogeneous - somewhat
pronouncing -

#439

Like 438 -
not Elec - but count go Quite
to Knife Edge no Gacc
smears think its hard
Very fine chalky even -

Tracking Test 64

Not Elec, grain only mod
fine - Can go to Knife
no smear - - Not quite
homogeneous -
~~438-9~~ 431 too hard

Horribly Unhomogeneous
walls a/c chip out
bull smears Neg
Not Elec

Tracking Test 65

to 170 g [illegible] 20 [illegible]

not Elec

surface like Reg goes to

knife - not Elec Ball

dont smear,

walls chip some, all defined

Chatter -

somewhat pecouny

40 in Oxa Steam

Elec... not a little -

Its like 436 grain little finer

but Checks

Tracking Test 66

All fine chips - Elec - ball

smears, surface rather fine

grain - not pecouny

Checks all from Cylinder

Nitric Acid

Nitric Quinton

Oxa Steam

Hone #466

Not Elec - No smear, Tends

to too hard - Not Elec

chip breaks when keeping fing

slip to Cy

Tracking Test | 67

1 Stearic Acid
1 [illegible]
10 Na [illegible]

Not Elec Hardly goes to knife -
no smooth surface microscopic
chip rolls round - surface
not good enough - chip
breaks on deep cracking
not pronounced

466 10 Stearic
1 [illegible]
1 [illegible]

Too soft -

469 Chip breaks - Elec,
Wedge chip - not good
10 Stearic Acid
1 Camphor
3 Na Stearate

Tracking Test | 68

[illegible]
[illegible]
[illegible]

Rather coarse surface -
not good.

[illegible] Acid
Blend
Na Stearate
Coarse grain
Not good

[illegible] Acid
[illegible]
[illegible]
Coarse grain

Tracking Test 69

#473 1 Stearic Acid
1 Oleic
10 M Stearate

All checks
Horribly Unhomogeneous

#474 10 Stearic Acid 1 Myristic
3 M Stearate

Not Elec - Smears little -
rather fine grain
Challenge ll defined -
Some Promoting

#474-A - same as #474 + .25% Lanolin

Not Elec Chip Breaks
in deep
Rhese better than 474

Tracking Test 70

5 Stearic Acid
1 Myristic wax
6 M Stearate

Surface Coarse not good

1 Stearic Acid
1 Myristic wax
10 M Stearate

Not Elec - walls fair
goes beyond knife pretty
from surface No ball
~~smear~~ Smear, Somewhat
promoting

9 Stearic
1 Vegetable wax
9 M Stearate

Not Elec, grain not fine enough
goes to knife -
full Checks -

Tracking Test | 71

[illegible] 7 Stearic acid
1 Vegetable oil
5 Na Stearate

Not Elec fine grain, goes to knife
Reg Chatter No smear, probably
but too hard accurate deflection
PROMISING! Checks in Cy
fine checks

5 Stearic acid
1 Bayberry
1 Na Stearate

481

Not Elec but smear some
goes to knife - grain fairly
fine - not very necessary

482 1 Stearic acid
1 Bayberry
1/2 Na Stearate

Matted NG —

Tracking Test | 72

5 Stearic acid
1 Bayberry
7 Na Stearate

Not Elec no smear, grain
not good - not necessary.

[illegible] — [illegible]

Very Elec - NG -

494 [illegible]

Electrical —
not homogeneous

500 [illegible]

Electrical

No smear - grain not
very fine —
no smear

Tracking Test | 73

501 see #
Electrical -
No smear
grain not fine

502 see #
Electrical - grain fairly fine - No smear goes to knife - not really pronounced

503 see #
Slight smear - Electrical
Unhomogeneous

Tracking Test | 74

505 4g [illegible]
10 [illegible] + .25g [illegible]

Very Elec - coarse grain Chips break goes knife - Not good -
Very little smudge to surface

506 1 [illegible]
10 Myrtle

Very Elec - Chips break - surface smudges - grain fairly good - goes knife Not good -

517 $1 - myrtle
[illegible]

Only little Elec Chip break
Bond slick - walls chip -
~~[illegible]~~ Smudges much
Not good -

Tracking Test 75

518 Drops of 402 using Fine grade Candelilla
Not Elec - good,
Better turn it off again —

519 Drops of 5/7 - using Fine grade Candelilla
good - Not Elec surface
good - No smudge
VERY VERY good
bad spots in it segregation

520 180 g of 402 - 10 Carnauba
Same as 519 -
good - not Elec

521 180 g of 402 - 10 Montan
Like 519 too more fine
Chips stick - Segregation in
places — not Elec

Tracking Test 76

523 180 - 402 - 10 g Vaseline
Smudges too much -
Otherwise like 519 not Elec
segregations —

524 180 - 402 - 10 - Paraffin
Like 519 - same kind
segregation, smudges only a
little — not Elec

525 180 - 402 - 10 g Japan
Smudges - Bad Segregation
Acts like 519 -
Turn it off again.

527 180 - 402 - 10 g Ozocerite
Near like 519 - smudges
little - good —

Tracking Test 77

528 180g - 402 - 10g Vegetable

What I have called regraph
is dragging off the Back —
518 to 528 all have it —
This 528 good but drags

180g - 402 - 10g Chinese Lacquer

529 OK but drags only a
little @ Tears —
Must get rid of this drag

530 180g - 402 - 10g Bayberry

Promising - Don't drag
just Counts surface —
its too soft - grain fancy fine
turned off again

Tracking Test 78

180g - 402 - 10g [illegible]

Like 519 — drags —

529 180g 402 - 10 [illegible]

Drags — otherwise OK

530 180g 402 - 10 [illegible]

fine grain — Drags —
otherwise OK

534 180g 402 - [illegible]

Drags like above —

180 — 402 - [illegible]

Drags a smidge.
Little Elea

Tracking Test 79

537 180g - 402 - 5g [illegible]
Drags - Smutts + Somewhat
Elec + 2g -

538 180g 402 - Oil [illegible]
Smutts + drags - Some
Elec -

540 180g 402 - 5g [illegible]
~~[illegible]~~ only Drags
bad - not Elec - good

Tracking Test 80

541 180g 402 - 2.5g D.12 Fat Color
Not Elec Drags
Turn it off again from
grain - get Black - good

542 180g 402 - [illegible] Smoke
Smutts Dont drag
too soft -

543 90 [illegible]
10 [illegible]
Drags Smutts Coarse
+ Elec -

Tracking Test

#403 – castrated 5-7-14
turned off & shaved a day after
and also tracked first time

Drags bad, will season 3
or turn off after 3 days +
see if drag still there –

#402 – released after 5 days
5-12-14
seemed to drag [illegible]

Tracking Test #81

543 90 Myrill 10 Jn Pleasant
Smith & Drags
slight Elec – very mild –

547 Nat Elec Drags. bad
burn it off –

545 Very good – only a
trace of drag – very little
nat Elec – VERY promising
best yet for no drag
& equals 519 otherwise
with less drag

Tracking Test #82

551 Shade Elec Bad drag
OK fine dont
Drag no No Smith
sharp clean cut,
25 Myrill – 15 Mentor

545 just like 402
No smut or smudge –
sharp – nat Elec –
75 – Myrill 20 Mentor

546 Not so good as
545 Drags a little –

Tracking Test 83

515 – Very perfect Except leading ball drags wax no smut drag. Drag

519 ditto – but, Drags – –

521 ditto Drags

526 ditto Drags fine surface

527 Drags – otherwise ok

Tracking Test 84

530 Drags –

541 good surface only drags a little –

548 Drags just a shade of Drag – nearly good enough surface good fine grain –

551 Drags Considerable surface not very fine grain –

554 Drags rather much –

Tracking Test 85

557 Drags Bad –

558 Mottled, No drag
good fine grain, if it wasn't
Mottled it would be
very good – PROMISING –

559 Mottled. Drags –

560 Drags –

552 Very Little Drag –

555 Dirty spots on it
surface not very f –
Bad drag –

Tracking Test 86

556 Dirty. Very Bad drag

560 Some drag – chips break
shadow of Electric
Mottled –

561 A little drag – surface
not very fine –

Tracking Test 87

605 Very bad drag — not fine surface

604 Drags bad, "

609 Drags — bad "

610 Drags bad "

607 Very bad Drag fine surface

575 Drags a little Not Elec
smudges —

Tracking Test 88

612 Only little smudges
No Drag — Looks
promising — Not electric
Cuts good — quite soft —
for soft wax this is extremely
good, for harder wax
want twice as much
hardener —

613 No smudge or Drag
Looks OK but surface not
as good as 402 —
might get surface better —

Tracking Test #89

614 Smudges bad - Very poor surface -

615 Same as 614 - NG -

616 Drags bad - fine surface -

617 Drags - good surface

621 Too hard no drag or smudge Not Elec but surface not fine, mix that segregates -

Tracking Test #90

623 OK - good surface not Elec but chip breaks - chatter is coarse & ill defined, think it too hard no smut or drag -

625 Chip breaks to powder too hard not Elec - no smudge or drag - fair surface

624 To hard - no smudge or drag surface only fair -

Tracking Test 91

[illegible] – No summit or summidge
Too hard, Knife edge chips a little
on edge. Waveline surface showing
two felted crystals, Clean cut
Promising if softened a little
chipping conditions – flaws in casting

628 Checks in Casting
No summit or summidge –
Knife edge bridge walls chip
wax too hard no better
than 627 if as good, less
waveline

629 Horrible surface stuff,
Dont mix together NG

Tracking Test 92

630 Electrical
two stuffs dont mix
at all horrible
surface NG –

631 Bad mix but not
near as bad as
629 630 – not Elec

632 Bad surface made
worse by Dray – Comes
off in fine chips – not
Elec

Tracking Test 93

632 Waxy lite surface
Drags bad - not Elec

635 No drag fair surface
not Elec - but shade too
brittle. Knife edge chips
outa little

636 Surface ~~and~~ only fair
not homogeneous or very
fine grain - not Elec -
only pronounced

Tracking Test 94

637 Knife edge chips —
~~the~~ too hard - no drag
or smudge not Elec

638 Not Elec - Knife edge
seemedly very chipping out
surface not quite fine
enough grain, drags
seemedly very - should be
softened a shade,

641 Not Elec. No drag
looks fair. But has
fibrous surface —

Tracking Test 95

642 Very fibrous not Elec surface not Elec
~~not~~ to get this OK must have something that stop fibrous crystals from it would be fine.

643 Good — fine grain fine surface no smut or drag — Knife Edges OK don't chip. —

Only trouble could slight fibrous crystalque a little something 2 or 3% might stop it —

Tracking Test 96

644 V G too Very Electrical

645 = not good surface.

646 Bad surface not Elec Knife Edge chips out too hard —

647 Hot day — Temp 90 Fahr pretty fair surface not Elec — no drag or smudge, Contains chip Knife edge don't break out

PROMISING

Tracking Test 97

5[illegible] Some drag - surface not very good | 90° Talc body

545 Pretty good chip not Continuous - no drag or smudge - pretty fine grain think Lower Cadder 62 too brittle if softer would be good VERY PROMISING

546, 90° Talc - too hard with light chip comes off Continuous but dropping goes to powder - good surface no chip out walls - Want to be softer -
VERY PROMISING

Tracking Test 98

647 About same as 546 - but harder chip comes off as powder (90° Talc)

648 Same as 546 - chip all powder too hard -

649 - Beautiful surface a OK - no smudge or drag but too hard chip comes off as powder

650 Very good - chip Continuous, only a shade of smut at advance ball
VERY VERY PROMISING

Tracking Test 99

651 Almost perfect
fine grain Coulemous Chip
~~[illegible]~~ packaged
surface, better than 650 —
90° Fahr.

Dup of above # 651

Almost perfect, fine grain surface
about like Rag No drag or amount
Chatter marks coarser than Rag
but even goes further than Knife
Edge — If grain can be got finer
it is OK not a sign of Electrical
= Chip Coulemous down to
Knife Edge — deeper it breaks
into 1/4 Lengthwise —
Temp 84° Fahr - dry cut at this

Tracking Test 100

652 Very Electrical NG

654 Not Elec coulemous
Chips even beyond Knife Edge
Grain fine but it Drags a
little — too soft.